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EXAMINER	
DEVI, SARVAMANGALA J N	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,007	LE PAGE ET AL.	
	Examiner	Art Unit	
	S. Devi, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *4-10,12,14-21,23 and 24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,11,13 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3602*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Preliminary Amendment

1) Acknowledgment is made of Applicants' preliminary amendment filed 02/02/04. With this, Applicants have amended the specification.

Election

2) Acknowledgment is made of Applicants' election filed 08/08/03 in response to the restriction requirement mailed 06/24/03. Applicants have elected invention I, claims 1-3, 11-13 and 22, the polypeptide of SEQ ID NO: 24 (ID-87) as claimed. Because Applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (M.P.E.P § 818.03(a)). Since Applicants have elected ID-87, claim 12 is no longer in the elected group. It should further be noted that although Applicants refer to SEQ ID NO: 24 as a 'species' in the election filed 08/08/03, there was no species election requirement made in the instant application. Via the restriction requirement mailed 06/24/03, the various polypeptides or proteins from Figure 1, as claimed, were subject to a restriction requirement, as opposed to a species election requirement.

Status of Claims

3) Claims 1-24 are pending.

Claims 4-10, 12, 14-21, 23 and 24 are withdrawn from consideration as being directed to non-elected inventions. See 37 C.F.R 1.142(b) and M.P.E.P § 821.03.

Claim 12 is not drawn to the elected ID-87 and therefore is also withdrawn from consideration.

Claims 1-3, 11, 13 and 22, to the extent these claims encompass SEQ ID NO: 24, have been elected and are under examination. A First Action on the Merits on these claims is issued.

Information Disclosure Statement

4) Acknowledgment is made of Applicants' information disclosure statement filed 03/06/02. The information referred to therein has been considered and a signed copy is attached to this Office Action.

Sequence Listing

5) Acknowledgment is made of Applicants' submission of the raw sequence listing and the CRF which have been entered.

Priority

6) The instant application is a continuation of the PCT application, PCT/GB00/03437, filed 09/07/00, which claims foreign priority to application 9921125.2, filed 09/07/1999 in the United Kingdom.

Specification - Informality

7) The specification is objected to for the following reasons:

(A) The instant application is informal in the format or arrangement of the specification. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the Applicants' use.

Content of Specification

(a) Title of the Invention: See 37 C.F.R 1.72(a). The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive, preferably from two to seven words.

(b) Cross-References to Related Applications: See 37 C.F.R 1.78 and M.P.E.P § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See M.P.E.P § 310.

(d) Reference to a "Microfiche Appendix": See 37 C.F.R 1.96(c) and M.P.E.P § 608.05. The total number of microfiche and the total number frames should be specified.

(e) Background of the Invention: The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(f) Brief Summary of the Invention: A brief summary or general statement of the invention as set forth in 37 C.F.R 1.73. The summary is separate and distinct from the

abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(g) Brief Description of the Several Views of the Drawing(s): A reference to and brief description of the drawing(s) as set forth in 37 C.F.R 1.74. The recitation 'Figure Legends' on page 9 of the specification should be replaced with --Brief Description of the Drawings'--.

(h) Detailed Description of the Invention: A description of the preferred embodiment(s) of the invention as required in 37 C.F.R 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. This item may also be titled "Best Mode for Carrying Out the Invention." Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(i) Claim or Claims: See 37 C.F.R 1.75 and M.P.E.P § 608.01(m). The claim or claims must commence on separate sheet. (37 C.F.R 1.52(b)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps.

(j) Abstract of the Disclosure: A brief narrative of the disclosure as a whole in a single paragraph of 250 words or less on a separate sheet following the claims.

(k) Drawings: See 37 C.F.R 1.81, 1.83-1.85, and M.P.E.P § 608.02.

(l) Sequence Listing: See 37 C.F.R 1.821-1.825.

(B) Figure 1 extends to multiple pages or panels, each of which should be labeled beginning at Figure 1A, 1B, 1C etc. The description for Figure 1 and references to the figure throughout the specification should be amended accordingly to reflect this change.

(C) The use of the trademarks in the instant specification has been noted in this application. For example: 'Qiagen'; 'Sigma'; "Invitrogen"; 'TitreMax': "Novagen"; and 'Tween-20' etc. Although the use of trademarks is permissible in patent applications, the propriety nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks. It is suggested that Applicants examine the whole specification and make necessary changes wherever trademark recitations appear.

Rejection(s) under 35 U.S.C. § 101

8) 35 U.S.C. § 101 states:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this cycle.

9) Claims 1-3 and those that depend therefrom are rejected under 35 U.S.C § 101 as being directed to a non-statutory subject matter.

Claims 1, 2 and 3 do not sufficiently distinguish the claimed polypeptide or protein, derivatives or fragments thereof over naturally occurring polypeptides, proteins, or derivatives and fragments thereof as they exists naturally, because the claims do not particularly point out any non-naturally occurring differences between the claimed product(s) and the naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See *Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ 193 (1980)*. The claims should be amended to indicate the hand of the inventor, e.g., by insertion of --An isolated ..--; or --A purified--; or --An isolated and purified-- if descriptive support exists for such a limitation in the instant application, as originally filed. See MPEP 2105.

Rejection(s) under 35 U.S.C. § 112, First Paragraph

10) Claims 1-3, 11, 13 and 22 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

possession of the claimed invention. This is a written description rejection.

It is noted that a 'derivative', a 'fragment' or a 'variant' of ID-87 protein or polypeptide containing the amino acid sequence of SEQ ID NO: 24 as claimed in the instant claims does not exist independent of its function or activity, i.e., the ability to be immunogenic or antigenic such that it serves as an immunogenic or diagnostic composition. The claimed peptide or polypeptide derivative, fragment or variant is intended for use as a vaccine or as a diagnostic reagent in a kit. However, the instant specification fails to teach a single such polypeptide derivative, fragment or variant that concurrently has the activity identified above, such that the derivative, variant or fragment composition when administered to a subject shows diagnostic or immunogenic and/or protective activities or function(s). Therapeutic or prophylactic and diagnostic applications minimally require an ability of the recited polypeptide or protein derivative, fragment or variant to interact specifically with an antibody. The precise structure or relevant identifying characteristics of each polynucleotide derivative, variant or fragment molecule that encodes a derivative, fragment or variant of the polypeptide or protein of SEQ ID NO: 24 that is functional as recited in the claims can only be determined empirically by actually making every variant, fragment or derivative DNA molecule that encodes the polypeptide or protein variant, fragment, or derivative, and testing each varied DNA molecule to determine whether it encodes the recited polypeptide or protein fragment, derivative or variant that is functional as recited. The *Written Description Guidelines* state:

> There is an inverse correlation between the level of predictability in the art and the amount of disclosure necessary to satisfy the written description requirement. For example, if there is a well-established correlation between the structure and function in the art, one skilled in the art will be able to reasonably predict the complete structure of the claimed invention from its function.

A mere statement that the invention includes a polypeptide or protein 'variant', 'fragment' or 'derivative' of the amino acid of SEQ ID NO: 24 is insufficient to meet the adequate written description requirement of the claimed invention. The polypeptide of SEQ ID NO: 24 has specific biologic properties dictated by the structure of the protein and the corresponding structure of the structural gene sequence which encodes it. A convincing structure-function relationship has to exist between the structure of the gene sequence, the structure of the polypeptide or protein encoded, and the function of the encoded polypeptide or protein. The function cannot be predicted from the derivation or modification of the structure of the gene and in the instant case, the DNA comprising the modified nucleotides and encoding the recited polypeptide or protein variant, fragment, or

derivative of SEQQ ID NO: 24. Applicants have not shown that variation or modification of a reference sequence encoding a reference polypeptide or protein as claimed would automatically predict the production of a functional polypeptide or polypeptide variant, fragment or derivative having the recited biologic activity. The specification fails to teach the structure or relevant identifying characteristics of a representative number of species of modified DNA molecules encoding the polypeptide or protein variant, fragment or derivative as recited, sufficient to allow one skilled in the art to determine that the inventors had possession of the invention as claimed. With the exception of the amino acid sequence comprising SEQ ID NO: 24, a skilled artisan cannot envision the detailed chemical structure of all the polypeptide or protein fragment, derivative or variant species encompassed by the recited molecule. Regardless of the complexity or simplicity of the method of isolation, conception cannot be achieved until reduction to practice has occurred. Adequate written description requires more than a mere statement that it is a part of the invention and a reference to a potential method of isolating it. The nucleic acid comprising the modified nucleotides encoding the polypeptide or protein fragment, variant or derivative is required. See *Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993)* and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.*

11) Claims 1-3, 11, 13 and 22 are rejected under 35 U.S.C § 112, first paragraph, because the specification, while being enabling for a protein or polypeptide of *Streptococcus agalactiae* comprising the N-terminal sequence of SEQ ID NO: 24, and an antigenic or immunogenic composition thereof, and a kit comprising the same, does not reasonably provide enablement for a 'variant', 'derivative' or 'fragment' thereof as claimed, an antigenic, immunogenic, diagnostic or vaccine composition comprising such a 'variant', 'derivative' or 'fragment' that has antigenic, immunogenic, protective or diagnostic functions.

The instant claims are evaluated based on the *Wands* analysis. Many of the factors regarding undue experimentation have been summarized in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Circ. 1988) as follows:

- The quantity of experimentation necessary (time and expense);
- The amount of direction or guidance presented;
- The presence or absence of working examples of the invention;
- The nature of the invention;
- The state of the art;

- The relative skill of those in the art;
- The predictability or unpredictability of the art; and
- The breadth of the claims.

In the instant case, the nature of the invention is related to 'fragments', 'derivatives' or 'variants' of a microbial protein and an antigenic or immunogenic composition and a kit comprising the same. The protein fragments, derivatives or variants are intended for use in an immunogenic composition, i.e., vaccine, or as a specific diagnostic reagent. The extent or degree of identity with the Group B streptococcal protein or polypeptide having the amino acid sequence of SEQ ID NO: 24 is described to be at least 50% (see claim 2). However, there is no showing that these protein 'fragments', 'derivatives' or 'variants' retain the antigenic, immunogenic or protective functions. Although a microbial polypeptide or protein is expected in the art to generally induce specific antibodies, the ability of undefined 'fragments', 'derivatives' or 'variants' of such a protein or polypeptide to serve as an immunogenic composition or vaccine to confer protective immunity against a microbial disease, Group B streptococcal disease in the instant case, or to serve as a diagnostic reagent/kit, is not predictable. The instant specification fails to teach how to produce a 'derivative', a 'fragment' or a 'variant' such that it is capable of serving as an immunogenic or vaccine composition and is capable of conferring immunity against Group B streptococcal disease, and as a diagnostic composition or kit capable of detecting or diagnosing Group B streptococcal infections. The specification provides no guidance as to which specific amino acids must be retained in the polypeptide 'fragment', 'derivative' or 'variant' and which may be varied without causing any detrimental effect to the claimed protein or polypeptide product that is meant to serve as an immunogenic composition or a vaccine. There is no guidance in the instant specification with regard to which amino acid variations, i.e., insertions, deletions, additions and substitutions, in the protein would result in a 'fragment', 'derivative' and 'variant' protein or polypeptide that would retain the functional integrity or biological, antigenic and immunogenic competence of the native protein, without rendering it non-functional. This is important because the art reflects unpredictability as to which amino acids in a specific protein can be varied, i.e., replaced or added, without adversely affecting the functional properties of that specific protein. While it is known in the art that variation in one or more amino acids is possible in a given protein, the exact position within its amino acid sequence where replacements or variations can be made, with a reasonable

expectation of success of retaining the protein's or polypeptide's functional competence, is not certain. A random replacement affecting the epitopic amino acid positions that are critical, for example, to the three-dimensional conformational structure and specific binding property of the protein, would result in a polypeptide that may be non-functional, or not optimally antigenic as a diagnostic reagent, or not optimally immunogenic as a vaccine candidate, because such positions tolerate no or little modifications. For instance, Houghten *et al.* (New Approaches to Immunization, *Vaccines86*, Cold Spring Harbor Laboratory, p. 21-25, 1986) teach the criticality of individual amino acid residues and their positions in peptide antigen-antibody interactions. Houghten *et al.* state (see page 24):

> One could expect point mutations in the protein antigen to cause varying degrees of loss of protection, depending on the relative importance of the binding interaction of the altered residue. A protein having multiple antigenic sites, multiple point mutations, or accumulated point mutations at key residues could create a new antigen that is precipitously or progressively unrecognizable by any of the antibodies in the polyclonal pool.

Thus, the art reflects that variations in critical residues at specific positions in an amino acid sequence could result in a polypeptide which may induce an antibody that may not recognize or bind to the native polypeptide of a microorganism. In the instant case, this is important because one of the purposes of the instant invention is to produce a variant, derivative, or fragment of the recited protein in or polypeptide in its biologically active, or immunogenic form. The instant disclosure lacks guidance on the precise position(s), nature and extent of amino acid replacements, deletions or variations that can be made in the claimed protein or polypeptide in order to produce a variant, derivative, or fragment, and with regard to whether it would serve as an effective immunogen capable of conferring immunity against Group B streptococcal disease in a host. There appears to be no evidence that the claimed fragments, variants or derivatives were indeed made and tested for their ability to serve as an effective immunogenic, antigenic or vaccine compositions by any acceptable screening assay or animal model. Clearly, the specification lacks adequate guidance and disclosure that would limit the experimentation from being undue. Given the art-recognized unpredictability associated with the structure-function relationship of a protein or polypeptide, one of skill in the art would look into the specification for specific teaching and guidance, which in the instant case is lacking. Due to the lack of specific disclosure as to the precise structure of the protein or polypeptide derivatives, fragments and variants; the lack of demonstration of their

antigenic, immunogenic, diagnostic and/or protective ability; the art-recognized unpredictability factor associated with the functions of a polypeptide or protein following derivatization, variation or deletion; the breadth of the claims; and the quantity of experimentation necessary, undue experimentation would have been required to practice the invention as claimed. The claims are viewed as not meeting the scope of enablement provisions of 35 U.S.C. § 112, first paragraph.

Rejection(s) under 35 U.S.C § 112, Second Paragraph

12) The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude one or more claims particularly pointing out and distinctly claiming the subject matter which the Applicant regards as his/her invention.

13) Claims 1-3, 11, 13 and 22 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

(a) Claims 1, 3, 11 and 22 are vague and indefinite in the recitation 'derivatives', 'derivative', 'fragments', 'fragment', 'derivatives', 'derivative', or 'variant', because it is unclear what is encompassed in this limitation. What constitutes a 'derivative', 'fragment', or 'variant' and how much of the protein's or polypeptide's original structure has to be retained such that the resulting product can be considered a 'derivative', 'fragment', or 'variant' is not clear. The metes and bounds of the structure encompassed in the limitation 'derivative', 'fragment' or 'variant' are indeterminate.

(b) Claims 1 and 5 are vague in the recitation: 'having a sequence' without clearly reciting what sequence it is. For the purpose of distinctly claiming the subject matter and for clarity, it is suggested that Applicants replace the limitation with --having an amino acid sequence--.

(c) Claim 1 is indefinite in the recitation "those described in fig 1", because it fails to point out what is included or excluded by the claim language, especially because Figure 1 is subject to changes via amendments even after allowance, which would change the scope of the claim. According to M.P.E.P 2173.05(s), where possible, claims are to be complete in themselves. Incorporation by reference to Tables, and Figures, or Examples is a necessity doctrine, not for Applicants' convenience. See *Ex parte Fressola*, 27 USPQ2d 1608, 1609 (Bd. Pat. App. & Inter. 1993). In order to obviate the rejection, it is recommended that Applicants recite the exact polypeptide or protein by referring to its SEQ ID number, instead of referring to it via a Figure.

(d) Claim 2 is confusing and/or incorrect in the recitation 'variants ..... peptides as claimed in claim 1', because claim 1 does not recite any 'variants' or 'peptides'.

(e) Claim 2 is confusing and/or incorrect and has improper antecedence in the recitation 'the proteins, polypeptides ..... as claimed in claim 1' [Emphasis added], because claim 1 does not recite 'proteins' or 'polypeptides'.

(f) Claim 2 is confusing, indefinite and/or redundant in the recitation 'as claimed in claim 1 ..... claimed in claim 1'.

(g) Claim 11 is confusing, incorrect and/or has improper antecedence in the recitation 'proteins, polypeptides, peptides, ... as defined in any one of claims 1 to 3', because claim 1 does not recite 'proteins' or 'polypeptides' as well as any 'peptides'.

(h) Claim 13 lacks proper antecedence in the recitation: 'An immunogenic composition as claimed in claim 11 ...'. For proper antecedence, it is suggested that Applicants replace the limitation with --The immunogenic composition as claimed in claim 11--.

(i) Claims 11 and 22 lack proper antecedence in the recitation: 'An immunogenic composition as claimed in claim 11 ...'. For proper antecedence, it is suggested that Applicants replace the limitation with --The immunogenic composition as claimed in claim 11--.

(j) Claim 22 is vague and indefinite in the recitation 'at least one ..... protein, polypeptide, peptide ..... as defined in any one of claims 1 to 3', because: (i) claim 1 recites 'A' protein or polypeptide, but not more than one polypeptide or protein; and (ii) claim 1 does not include the recitation 'peptide'.

(k) Claims 2, 3, 11, 13 and 22, which depend directly or indirectly from claim 1, are also rejected as being indefinite because of the indefiniteness identified above in the base claim.

Rejection(s) under 35 U.S.C. § 102

14) The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
> **(e)** the invention was described in-
> **(2)** a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

15) Claims 1, 2, 11 and 13 are rejected under 35 U.S.C § 102(e)(2) as being anticipated by Hogan *et al.* (US 6,093,538).

It is noted that the polypeptide or protein claimed in the instant claims is not required to be isolated or purified. Therefore, the whole cells or cell lysates of Group B streptococci anticipate the claims. The term vaccine' in claim 13 is viewed as representing the intended use of the claimed product and therefore is not given any patentable weight.

Hogan *et al.* disclosed whole cell lysates of *Streptococcus agalactiae* (see Table 4 and footnote thereto). Hogan's whole cell lysate of *Streptococcus agalactiae* inherently contains the claimed polypeptide or protein, or a fragment or derivative thereof, and would inherently serve as an immunogenic or vaccine composition.

Claims 1, 2, 11 and 13 are anticipated by Hogan *et al.*

16) Claims 1-3, 11 and 13 are rejected under 35 U.S.C § 102(e)(2) as being anticipated by Green *et al.* (US 6,100,380, filed 06/07/1995).

The transitional limitation "comprising" or "having" similar to the limitations, such as, "has", "includes," "contains," or "characterized by," represents open-ended claim language and therefore does not exclude additional, unrecited elements. See M.P.E.P 2111.03 [R-1]. See *Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986)*; *In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CPA 1981)*; *Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948)* ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts"). On the other hand, the limitation "consisting of" represents closed claim language and excludes any element, step, or ingredient not specified in the claim. *In re Gray, 53 F.2d 520, 11 USPQ 255 (CCPA 1931)*; *Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948)*.

Green *et al.* disclosed a therapeutic or prophylactic immunomodulating Gly-Lys dipeptide preparation in saline (see abstract and Example 7). The prior art Gly-Lys dipeptide serves as a fragment of the instantly recited SEQ ID NO: 24 being located at positions 296 and 297, or at 655 and 656 of the sequence. The peptide is present as a pharmaceutical composition in a pharmaceutically acceptable carrier, such as, saline, water, lipoprotein, or interferon. The peptide is also formulated as a tablet, capsule or suppository (see column 5). An interferon- or lipoprotein-containing peptide composition is expected in the art to be immunogenic. That Green's tablet or

capsule comprising the Gly-Lys dipeptide is contained in or gets supplied in a package, and therefore intrinsically serves as a kit is inherent from the disclosure of Green *et al.*

Claims 1-3, 11, 13 and 22 are anticipated by Green *et al.*

17) Claims 1-3, 11 and 13 are rejected under 35 U.S.C § 102(e)(2) as being anticipated by Pierschbacher *et al.* (US 5,955,578 A, filed 06/05/1995).

The term 'vaccine' in claim 13 represents the intended use of the claimed product and therefore is not given any patentable weight.

The transitional limitation "comprising" or "having" similar to the limitations, such as, "has", "includes," "contains," or "characterized by," represents open-ended claim language and therefore does not exclude additional, unrecited elements. See M.P.E.P 2111.03 [R-1]. See *Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986)*; *In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CPA 1981)*; *Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948)* ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts"). On the other hand, the limitation "consisting of" represents closed claim language and excludes any element, step, or ingredient not specified in the claim. *In re Gray, 53 F.2d 520, 11 USPQ 255 (CCPA 1931)*; *Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948).*

Pierschbacher *et al.* disclosed an isolated synthetic polypeptide fragment or derivative, RGD, and a therapeutic composition comprising the RGD sequence being conjugated to a polymer (see abstract; columns 3 and 4; and claims). The prior art RGD peptide has 100% (i.e., at least 50%) sequence identity with the peptide or polypeptide fragment, RGD, comprised at amino acid positions 143 to 145 of the instantly claimed ID-87 polypeptide of SEQ ID NO: 24. The polypeptide or peptide product of the prior art is also immobilized plastic wells or loaded on to sponges (see paragraph bridging columns 6 and 7, and paragraphs 7 and 8).

Claims 1-3, 11 and 13 are anticipated by Pierschbacher *et al.*

Rejection(s) under 35 U.S.C. § 103

18) The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a)** A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

19) Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pierschbacher *et al.* (US 5,955,578 A, filed 06/05/1995) or Hogan *et al.* (US 6,093,538) as applied to claims 1 or 3 above.

The teachings of Pierschbacher *et al.* or Hogan *et al.* are explained above, which do not expressly disclose a kit comprising their polypeptide fragment or derivative.

However, methods of assembling a kit using an art-disclosed product was well known and routinely practiced in the art. Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to produce a kit using Pierschbacher's polypeptide fragment or derivative, or immobilized plastic wells or sponges loaded with the polypeptide fragment or derivative, or Hogan's *S. agalactiae* cell lysate. One of skill in the art would have been motivated to produce the instant invention for the expected benefit of making readily available, or for commercializing Pierschbacher's polypeptide fragment or derivative, or Hogan's *S. agalactiae* cell lysate.

Claim 22 is *prima facie* obvious over the prior art of record.

Objection(s)

20) Claims 1-3, 11, 13 and 22 are objected to for the reasons explained below:

(a) Claims 1-3, 11, 13 and 22 are objected to for including non-elected subject matter, i.e., subject matter other than ID-87 (SEQ ID NO: 24).

(b) Claim 13 is objected to for including non-elected subject matter, i.e., of claim 12.

Remarks

21) Claims 1-3, 11, 13 and 22 stand rejected.

22) Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile

transmission. Papers should be transmitted via the PTO Fax Center located in Crystal Mall 1. The transmission of such papers by facsimile must conform with the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The CM1 facsimile center receives transmissions 24 hours a day and 7 days a week. The RightFax number for submission of before-final amendments is (703) 872-9306. The RightFax number for submission of after-final amendments is (703) 872-9307.

23) Any inquiry concerning this communication or earlier communications from the Examiner should be directed to S. Devi, Ph.D., whose telephone number is (571) 272-0854. The Examiner can normally be reached on Monday to Friday from 7.45 a.m. to 4.15 p.m. except one day each bi-week, which would be disclosed on the Examiner's voice mail system. A message may be left on the Examiner's voice mail system.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lynette Smith, can be reached on (571) 272-0864.

May, 2004

S. DEVI, PH.D.
PRIMARY EXAMINER